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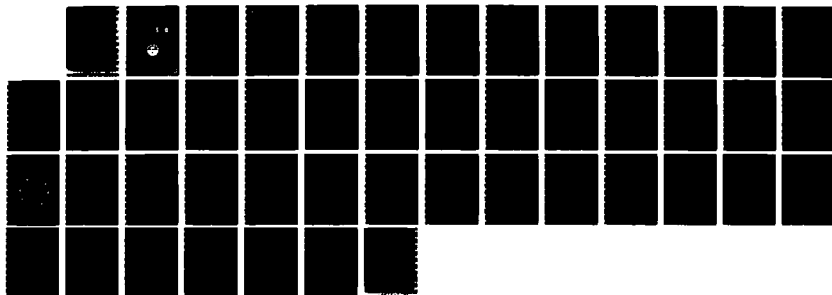
TRAINING EDUCATION AND EXPERIENCE NEEDS IN NAVAL SEA
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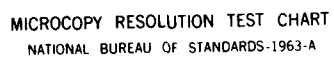
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TRAINING, EDUCATION, AND EXPERIENCE NEEDS
IN NAVAL SEA SYSTEMS COMMAND PROGRAM OFFICES

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10 November 1986

From: Commanding Officer, Navy Personnel Research and Development Center

Subj: TRAINING, EDUCATION AND EXPERIENCE NEEDS IN NAVAL SEA SYSTEMS
COMMAND PROGRAM OFFICES

Encl: (1) NPRDC Technical Note 87-1

1. This Technical Note (enclosure (1)) presents the results of a study to determine the needs of the personnel of the Naval Sea Systems Command (NAVSEASYSCOM) program management offices (PMSs) for training, formal education, and developmental experiences. Improving the professionalism of acquisition personnel is of great interest to persons inside and outside the Department of Defense. This information is intended to be used by those responsible at NAVSEASYSCOM for providing the needed training and development for PMS personnel.

2. This study was conducted for NAVSEASYSCOM in support of work unit No. N000248WR94473.

A handwritten signature in cursive script that reads "James S. McMichael".

JAMES S. McMICHAEL
Director
Training Laboratory

Distribution:
NAVSEASYSCOM (SEA-90D) (20)

**TRAINING, EDUCATION, AND EXPERIENCE NEEDS IN NAVAL SEA
SYSTEMS COMMAND PROGRAM OFFICES**

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SUMMARY

Background and Purpose

There is a great deal of interest in the Congress, Office of Secretary of Defense (OSD), and the Navy in ways to upgrade the skills of people in acquisition management. The Naval Sea Systems Command (NAVSEA) is very interested in addressing this issue. This study was done to assist NAVSEA in analyzing the problem and generating solutions. It focused on NAVSEA program management offices (PMSs) because they are the focal point of acquisition management. The study covered learning via both formal training and job experience. The purposes were to (1) find out the training, development, and job experience needs of people working in the PMSs; the extent to which these needs are being met; and the existing mechanisms and resources for training, education, and development and (2) make recommendations for improving the training and development of PMS members.

Approach

A cross-section of members from two representative PMSs (for a total of 36) and ten other key people outside the PMSs were interviewed individually. The questions were distributed before the interviews, which were semistructured. The findings and recommendations were supplemented with the results of other studies on the topic. The analyses of the findings consist of presenting the main themes which emerged from the interviews as well as individual comments that appeared to have particular value.

Findings

Background of PMS Personnel

The majority of PMS interviewees (74%) have a bachelor's degree in engineering. A fair number also had graduate education (32%), often in engineering or business administration. On the average, they had not taken too many training courses (an average cited of 3.2), but there was variation from 0 to 10. Most civilians had begun their careers in a NAVSEA technical code (68%). A few had begun in a field activity or industry (15%). Most naval officers had begun their careers in the fleet. Some had had previous acquisition training and/or experience prior to arriving (45%) at the PMSs while others had none (55%).

Preparation for PMS Jobs

Engineering background was cited as needed for most jobs. However, most PMS members said they do not do engineering per se; rather, they manage other organizations (e.g., technical codes, contractors, or laboratories) that do the engineering. Consequently, almost all interviewees felt they need a general background in engineering but did not need further training or development in engineering. Only three people cited any specific need for more technical training (i.e., in science or engineering). Various broadening experiences, such as being assigned to field activities, Office of the Chief of Naval Operations (OPNAV), or industry, were perceived as very beneficial. Those who had had these experiences (approximately 30% of the civilians) felt that working outside NAVSEA gave them extremely useful skills and knowledge about how other organizations do business, and knowledge about where expertise and other forms of resources exist. Virtually everyone said they need more training or development to be more effective. The following is a list of the types of training/development needed. Item 1 was mentioned

most and item 2 was second in frequency. Items 3-6 were mentioned approximately equally. Items 7-9 were mentioned by fewer people.

1. Knowledge about contractors/private industry. This includes both the way industry does business and the way in which they should relate to the private sector (i.e., contractors). PMS members have difficulty doing business with contractors when they do not understand the internal or external world of the private sector.

2. Procedural knowledge. This pertains to the formal laws, policies, and procedures by which the PMS, Navy, DoD, and Congress do business. The areas most often mentioned are financial management and procurement.

3. Knowledge of management practices appropriate for PMS management. This includes practices which would improve both internal PMS functioning and the external relationships of the PMSs to other organizations (e.g., other NAVSEA codes, OPNAV). Examples given included knowledge about principles of good program management, general leadership skills, skills in setting priorities and making tradeoffs, skills in building teamwork, and skills in ensuring adequate communication and coordination.

4. Skills in written and oral communication. These are needed to effectively promote and defend the program and to better communicate instructions and information to people outside the PMS, especially contractors.

5. Information on instructions. The number of instructions relevant to the PMS is very large and subject to frequent change. People need better access to this information.

6. Knowledge of organizational structure, both formal and informal. The very complex formal organizational structure of the acquisition world is overlaid by an even more complex informal structure. Understanding these structures can make a big difference in an individual's ability to be effective.

7. Orientation program. New people should spend several days getting acquainted with the key components of the PMS and NAVSEA and learning basic procedures, both acquisition procedures and internal office procedures.

8. Visits to the fleet. Many PMS people do not get to observe the effects of what they do or observe the environment in which their product must perform.

9. Miscellaneous. Other training was mentioned by one or two people: configuration review procedures, data management procedures, training on computers, and interpersonal relations training.

Most officers and many civilians noted the difficulties incurred when an officer is sent to a PMS with no prior acquisition training or experience. Officers said this impeded their ability to be effective, especially at first. Three of them, including a very senior one, described the phenomenon as "culture shock."

On the average, people had somewhat low expectations about receiving the training/development they need but a few people had positive expectations and good past success in this regard. Most people saw a need to exercise a high level of personal initiative in order to get training or relevant job experiences.

Preparation for Career Change or Progression

People varied a lot in the extent to which they had a definite idea of their desired career progression. About 15 percent were very clear about their career goals, 55 percent were vague, and 30 percent had no idea. In terms of what training or development would prepare them, there was a fair amount of uncertainty. Many people noted the lack of a defined career ladder for people in PMSs. The one shared impression of the type of training/development likely to be instrumental to advancement is training that is broadening (i.e., provides an expanded picture of the world surrounding the PMS).

Mechanisms to Achieve Training and Development

On the average, people felt that the mechanisms for identifying needs required improvement. About half of the people said they were not aware of such mechanisms. The mechanisms mentioned included Individual Development Plans (IDPs), an annual training survey, discussions during performance appraisal, periodic discussions with one's supervisor on career development, and ad hoc discussions with one's supervisor. In particular, a number of people said that the lack of a defined career ladder which includes suggested training makes it difficult to figure out what training and development are desirable from management's point of view. In terms of mechanisms for fulfilling needs, people see a need for a balance of training, education, and job experience. There was a great deal of variation in the extent to which people are aware of the available courses, degree programs, and developmental/job experience opportunities. One set of mechanisms which was mentioned especially positively was formal rotational programs. The main examples were the Commander's Development Program and the Weapons System Management Development Program. These were seen as beneficial because of the broadening experiences they provide. The impediments seen to receiving training/development are listed below. The first was mentioned by far the most frequently. The rest are not listed in order of response frequency because they were all mentioned with about equal frequency.

1. High workload. The high workload precludes people taking time off the job for training or development.
2. Lack of money. Some people had experienced this problem while others had not.
3. Lack of managerial support and encouragement. Again, some people had experienced this while others had experienced the opposite. In general, however, this relates to the high workload problem. If managers do not encourage training, it is usually because they cannot spare their employees from the job.
4. Lack of employee motivation. Some PMS managers felt that quite a few PMS employees are not motivated to get training or development. These managers do, however, recognize that the prospect of work accumulating is a demotivator to employees.
5. Lack of publicity and awareness. Many more training and development opportunities exist than most people realize. The average PMS member had a limited idea of available resources.
6. Lack of lead time to sign up. Sometimes training announcements are distributed too late to sign up.

7. Requirements for employees to use their own time. Some training opportunities require employees to use their own time. For some employees, this is impossible because of constraints such as car pools, late working hours, etc.

Some questions were asked directly pertaining to NAVSEA Institute (NI). On the average, there was low participation in NI courses for several reasons. Some people had never heard of NI (10%) or had never seen the catalog (30%). Even most of those familiar with NI chose not to participate because they felt NI primarily offers training on detailed engineering and scientific topics and they want more training on management and procedural topics.

Additional Issues

Several other questions were asked. One asked about the effects of the recent attention to improving acquisition professionalism. People generally thought it could be helpful but some were skeptical about how much would get implemented. Most did not know the specifics of these initiatives. Another question pertained to the training/development of military versus civilian personnel. Most civilians felt officers got more training/development, while a fair number of officers felt the PMS civilians had the advantage in this respect. The explanation for this difference in perception is that officers usually get a lot more training, education, and career development than do civilians but most of it is fleet-related. On the average, they get little prior acquisition-related development. Civilians, on the other hand, have had a lot of acquisition-related experience and usually a modest amount of acquisition training by virtue of spending most of their careers in NAVSEA. A question was asked about the extent to which training/development needs are generic across PMSs in various systems commands. Most of those who had enough perspective to answer felt the needs were more similar than different. In response to another question, a majority of people said that the phase of the program makes a difference, but not an overwhelming one, in training/development needs.

Conclusions

The training, development, and job experience needs of PMS members pertain primarily to management methods and procedural knowledge. Most people feel these needs are not being met adequately. The predominant reason is high workload. However, the existing mechanisms for training and development were also found as wanting. There is very little perceived need for further technical training.

The interest outside and inside NAVSEA in this topic provides a good context to support improvement. On the other hand, the environment offers some formidable obstacles. Cuts in budgets and other resources mean more must be done with less. Also, with every publicized error in the acquisition world, more procedures are levied, which requires even more knowledge and skill from PMS members. This is a vicious circle. The challenge is to improve PMS employee development during a time of increasingly scarce resources and procedural demands on the PMS.

Recommendations

1. Develop a better resource base of training, education, and development opportunities in the areas identified by this study especially in management and procedural knowledge and practices pertaining to acquisition.

2. Consider obtaining more detailed information about the types of instruction and development needed in order to be able to offer resources that are fully responsive to the needs.

3. Define a career ladder in acquisition management. This would include the competencies or desirable job behaviors and skills at various levels and associated training and development.

4. Give wider and more timely publicity to these training and development resources. People should receive the publicity sufficiently in advance to allow them to schedule their participation.

5. Consider using adult learning approaches to instruction. Adults are motivated to learn principally if they can see some direct benefit to their present job, a future job, or some other aspect of their lives. Therefore, it is important to tie learning experiences as directly as possible to job requirements.

6. Expand the systematic use of job experience. In particular, it would be highly desirable to expand the use of OJT, cross-training, developmental assignments, and formal rotational programs.

7. Create or enhance institutional mechanisms for identifying individual training and development needs. At least one mechanism should be created that is routinely used across all PMSs.

8. Recognize individual differences in the type of training needed and in the best method for learning.

9. Adopt an approach model after the state-of-the-art in management development; namely, a management development systems approach. This approach ties development to job behaviors and competencies, which in turn are tied to organizational objectives. This is in contrast to the management education approach that entails generalized development objectives, a focus on improving knowledge versus skills, and limited integration of the educational experience with on-the-job experience.

10. Make training and development an integral part of the organization's normal planning processes and goal setting, both at the NAVSEA corporate management level and at the PMS management level.

11. Utilize successful practices and resources already developed elsewhere to the extent that they are appropriate. Quite a few successful practices, and resources exist, but few people are aware of them.

12. Expand the use of nontraditional methods of teaching and instruction. This includes group instruction, self-administered instruction, personal goal-setting, networking, mentoring, and cross-training.

Tactics for Proceeding

In order to seize this initiative corporately, the following steps should be taken simultaneously:

1. Top NAVSEA management should publicize its interest and support for employee development.
2. PMS management should incorporate the training and development issue into its routine planning process and develop a system to tie this issue directly into its mission.
3. PMS management should design a proper balance of training/development delivery mechanisms to make training/development possible in the face of high workload.
4. Management's steady commitment to employee development should be ensured and mechanisms put in place to reduce the fluctuations in how much emphasis the issue receives.

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INTRODUCTION

Background

The area of weapons system acquisition has received a lot of scrutiny recently both inside and outside the Department of Defense (DoD). One of the ways to improve the acquisition process is to improve the skills, knowledge, and abilities of the people who manage it. There is a great deal of interest in the Congress, Office of the Secretary of Defense (OSD), and the Navy in ways to upgrade the skills of people in acquisition management. The two recent major studies of defense management mentioned this issue: The Goldwater and Nunn report (Staff Report to the Committee on Armed Forces, 1985) and the Packard Commission report (President's Blue Ribbon Commission on Defense Management, 1986). Two other major studies have been done solely on this issue: The Acquisition Enhancement (ACE) study (1985), which was done for OSD (and for which a follow-on is underway), and a General Accounting Office study (1986) on strengthening capabilities of personnel in systems acquisition. The result is that the need to significantly upgrade the skills of people who work in acquisition management is an idea whose time has come.

The Naval Sea Systems Command (NAVSEA) recognized the need to understand the problem better. Therefore, they requested that this study be done. This study focused on the program management offices (PMSs) within NAVSEA since they are the focal point of acquisition management.

Objectives

This study was conducted to:

1. Determine the needs for training, education, and job experience of people working in PMSs; the extent to which these needs are being met; and the existing mechanisms and resources for training, education, and development.
2. Make recommendations for improving training and development for PMS members.

APPROACH

Interviews

The main sources of information were interviews. NAVSEA selected two reasonably representative PMSs for participation in the study: A ship PMS and a weapons system PMS. Individual interviews were conducted with a cross-section of PMS members including almost all of the top management of each PMS. Interviews were conducted with 19 members of one PMS and 17 members of the other. Table 1 summarizes the organizational positions of the interviewees. In addition, 10 other interviews were conducted with the procurement contracting officers (PCOs), the PMS supervisors (flag officers), participants in the Commander's Development Program, and other key individuals who interact with the PMS.

The interviews were semistructured. The interview questions (Appendix A) were distributed before the interviews. Interviewees were encouraged to address whatever they felt were the most salient issues. Most interviews lasted 45-60 minutes.

Additional Sources of Information

Various documents--both internal and external to NAVSEA--were also examined. Some are other analyses of the problem, such as those cited in the background section. Others pertain to training resources such as the catalog of the NAVSEA Institute (NI). Still others pertain to the general topic of management development. Other experiences and findings of the Navy Personnel Research and Development Center in studying the acquisition system were used to the extent they were relevant in interpreting the results.

Analysis

The analysis summarizes the findings by major themes (i.e., recurrent ideas or opinions that seem to support major conclusions) and by highlighting unique and good ideas. Often during the interviews, only one or two people come up with a particular thought or idea that happened to be an excellent one. It is important to capture these good concepts and ideas even though they were not mentioned by the majority of people.

FINDINGS

The findings are presented for each interview question (given in Appendix A).

Background of PMS Personnel

Present Jobs

Table 1 summarizes the jobs currently being performed by the interviewees.

Career Paths

The career paths of the civilian PMS staff varied. The most common pattern began in a technical code of NAVSEA (68%), which was seen to be a good place to start. Some people began their career in a NAVSEA field activity or in industry (15%); these were seen to be particularly good places because they provided broadening experience. Not only were the career paths varied, but the number of different job experiences varied considerably. Some people had worked in only a few jobs and organizations while other people had worked in many different places.

A small proportion of the PMS members are military (i.e., naval officers). Most naval officers had begun their careers in the field. Some of the military PMS staff members had some background in acquisition jobs (45%), while others had absolutely none before arriving at the PMS (55%). The latter only had fleet related assignments. The military interviewees felt that this made a big difference in their ability to be effective. In other words, officers without relevant job experience, especially if coupled with a lack of training in acquisition matters, felt at a distinct disadvantage.

Table 2 summarizes the past organizational assignments of the PMS interviewees.

Table 1
Positions Currently Occupied by Interviewees

Current Position	Frequency
<u>Inside PMS</u>	
Program manager	2
Deputy program manager	2
Assistant program manager	8
Technical director	1
Production	4
Business and financial management	3
Budget	1
Logistics	4
Test and evaluation	1
Engineering	4
Configuration management	1
Foreign military sales	1
Program analysis	1
Competition	1
Clerical support	<u>2</u>
Total	36
<u>Outside PMS</u>	
Management above PMS in chain-of-command	4
Other PMS	2
Staff support to PMS	3
OPNAV	<u>1</u>
Total	10

Table 2
Past Career Assignments of PMS Interviewees

Past Assignments	Frequency
<u>Civilians (N=28)</u>	
NAVSEA technical code	25
Other NAVSEA PMS	7
Other NAVSEA code	6
Navy or DoD laboratory	5
Navy or DoD field activity	7
Private industry	6
Active duty Navy	4
OPNAV	2
Other	2
<u>Military (N=8) (Acquisition-related assignments only)</u>	
NAVSEA PMS	2
Other NAVSEA code	2
Navy or DoD field activity	4
OPNAV	1

Formal Education and Training

For purposes of this report, education is obtained in academic settings, while training refers to shorter courses and material not usually delivered directly in association with an academic degree program.

With respect to education, the majority had a bachelor's degree in engineering (74%). A fair number of people also had graduate education (32%), often in engineering or business administration.

The amount and type of training varied a great deal. However, on the average not a lot of training time had been taken, with an average of 3.2 courses cited in the course of a career. However, there was variation from 0 to 10. (For military, only acquisition-related courses were counted, not operational-related ones.)

Preparation for Current and Past PMS Jobs

Training, Education, and Experiences that Prepared the Interviewees

Interviewees were asked what training, education, and job experiences had been beneficial in preparing them for their current jobs in the PMS. Another question asked interviewees the same thing about past PMS jobs. Since the responses were similar, they have been combined.

Engineering background was cited as needed for most jobs except some clerical and Business and Financial Management (BFM) positions. Most people, however, maintained

that PMS members do not actually do engineering; they manage other organizations that do the actual engineering. These other organizations are usually technical codes, contractors, Navy laboratories, or other field activities. Consequently, most interviewees felt they needed only a general background in engineering and did not need further training or development in engineering per se. Only three people cited any specific need for more technical training (i.e., in science or engineering).

Experiences in field activities, Office of the Chief of Naval Operations (OPNAV), or industry were perceived as very beneficial. Those who had these experiences (approximately 30% of the civilians) felt that the opportunity to have worked outside NAVSEA gave them skills and knowledge that were extremely useful in their current job because the experiences gave them (1) a perspective of the role of a PMS in the bigger picture, (2) knowledge about how the organizations with which the PMS does business operate, (3) knowledge about the product, and (4) knowledge about where various resources exist. For example, one person who had worked in several different field activities said, as a result, he knows exactly where he can get certain kinds of technical work done and also he knows the key people in each organization personally. This personal network has served him well.

Another set of skills and knowledge which has prepared PMS members is knowledge about the various procedures by which the Navy and NAVSEA conduct business. Knowledge of procurement and financial management processes were chief among those cited as instrumental in one's being successful in supporting one's program.

Types of Training, Education, and Experience Needed

The interviewees were asked whether they needed more development, whether past lack of training/development had negatively impacted on their performance, and what types of training/development they felt they needed now.

Virtually everyone said they need more training or development to be effective. Also, many said that in the past lack of adequate preparation had negatively impacted on their ability to get the job done.

Major types of training/development cited as needed are listed below. Item 1 was mentioned most; item 2 was second in frequency. Items 3-6 were mentioned approximately equally. Items 7-9 were mentioned by fewer people. A number of these needs related in one way or another to the need to get "the big picture" surrounding the PMS and the acquisition process.

1. Knowledge about contractors/private industry. This includes both the way industry does business and the way in which they should relate to the private sector (i.e., contractors). With respect to the former, this includes many different aspects of the way industry does business; for example, methods of setting labor rates and overhead rates, capitalizing itself, and making decisions about investing in new equipment and its financing. This knowledge is needed because PMS members do a major amount of their business with private industry contractors. They have difficulty assessing the quality of these business interactions without understanding the way these organizations operate and the constraints under which they operate. With respect to the latter, the PMS members said they needed enhanced skills and knowledge in how to relate with contractors and control and monitor their performance (e.g., setting up a viable schedule monitoring system).

2. Procedural knowledge. This is knowledge of the formal laws, policies, and procedures by which the PMS, Navy, DoD, and Congress do business. Areas often mentioned as examples were financial management and procurement. People with this knowledge consider it very beneficial to have. People without this knowledge feel its lack, sometimes keenly.

3. Knowledge of management practices appropriate for PMS management. This includes all the practices that would improve internal dynamics of the PMSs as a group and the external relationships of the PMSs with other government organizations, such as other NAVSEA codes and OPNAV. Examples given by interviewees include the need for knowledge about good principles of program management and general leadership skills, skills in setting priorities and making tradeoffs, skills in building teamwork, and skills in ensuring adequate communication and coordination. The need to be able to set priorities and make tradeoffs was seen by one interviewee as increasing in the future with its environment of reduced resources. He cited as an example that his office was required to purchase additional systems with no increase in overall PMS budget. This in turn requires PMS people to decide what will not be done or purchased. The need for teamwork was cited as a particular challenge for the PMS. The "team" for any given purpose often includes people from outside the PMS. This requires teambuilding skills above and beyond those normally required for a team composed of people within the formal organization's boundaries.

4. Skills in written and oral communication. These were seen as needed to be able to (a) effectively market and defend the program to outsiders, often in the form of briefings or point papers and (b) communicate instructions and information clearly to people doing work for the PMS, especially contractors.

5. Information on instructions. The instructions governing the multitude of procedures in acquisition not only are voluminous but also are continually being changed. Many interviewees believe that the rate of change has increased and continues to increase. As a result, PMS members need to be apprised of the instructions and changes in instructions. Several people suggested that having a synopsis of instructions would be very helpful as well as having a reference system to aid in finding relevant instructions. A related need is for refresher training because the volume of information makes it impossible to remember everything over an extended period of time.

6. Knowledge of organization structure, both formal and informal. The formal organizational structure in the acquisition world is very complex. There is a strong need for PMS members to understand that structure and associated functions. An even more complex informal structure overlies the formal structure. If this informal structure is not recognized and understood, it can have serious consequences for the program. One interviewee said that half the battle was finding out who really has the power to approve various aspects of the program. He said that often these people cannot be recognized from organization charts. This general need is particularly salient to people who have not had previous experience in the acquisition world (e.g., some of the officers).

7. Orientation program. Spending several days getting acquainted with the key components of the PMS and NAVSEA and learning the basic procedures, both acquisition procedures and office procedures (e.g., how travel orders are done and approved), would be very helpful for new people. One person said a check-in procedure exists but often is not followed. This front-end investment in time is seen as beneficial in the long run.

8. Visits to the fleet. Many PMS people do not get to observe the results or effects of what they do or the environment in which their product must perform because they do not visit the ultimate customer, the fleet. Some interviewees mentioned the desirability of having as many people as possible spend some time aboard a ship or submarine.

9. Miscellaneous. One or two people mentioned the need for other types of training and development. Examples include configuration review procedures, data management procedures, training on computers, and interpersonal relations training.

The above are general groupings based on the training, education, and experience needs that were mentioned. In addition, however, the types of needs amenable to training or education (e.g., can be taught in courses) were subjected to a more detailed analysis. This was done particularly for the benefit of the NAVSEA staff with overall responsibility for professional development and curriculum planning. This specific list is in Appendix B.

On the average, people had somewhat low expectations about receiving the training and development that they thought they need but there was variation in opinions. People in one PMS had considerably higher expectations than the people in the other PMS. Also, three people pointed out that the receptivity of PMS management to training requests fluctuates considerably depending on who the program manager is. Reasons for the difficulty in getting needed training and development are described later in the section on training and development mechanisms.

Several of the officers had no acquisition experience before entering the PMS. All their experience had been operational experience in the fleet. Three of them, including a program manager, used the term "culture shock" to describe their initial reactions to the PMS experience. They felt unprepared for many aspects of the job and unanimously agreed that officers should be given some acquisition training or experience beforehand. The fleet situation was described as very structured. The reporting and decision rules as well as the organizational boundaries are well defined. The shore situation, especially in the systems commands (SYSCOMs) was described as very ambiguous. It is difficult to determine the formal and informal organizational structures, who has what influence, and the decision rules. Other skills and knowledge that some officers said they did not get in the fleet but need in the PMS include knowledge of the civilian personnel system, knowledge about how private industry operates, and sales skills to promote and defend the program.

Preparation for Career Change or Progression

Interviewees were asked what kinds of career changes or advancement they are aiming for and what training/development, if any, would prepare them.

The extent to which the interviewees had a definite idea of their desired career progression varied a lot. Some were very clear about their career goals (approximately 15%); others were vague (55%); others had no idea (30%).

In terms of what training or development would prepare them, there was a fair amount of uncertainty. This was true even among those who had a fairly clear idea of what jobs they were aspiring to. In terms of progressing within the PMS, many interviewees noted the lack of a defined career ladder. In general, they were unsure whether training and development would make a difference for promotion and, if so, what type. Without a defined career ladder, people said they are left to their own devices to

infer the promotion policies. The only shared impression of the type of training/development likely to be instrumental to advancement is training that is broadening (i.e., that which provides an expanded picture of the world surrounding the PMS).

On the average, people had somewhat low expectations about their likelihood of getting the training and development they need in order to be more qualified for advancement. Most people saw a need to exercise a high level of personal initiative in order to get training and relevant job experiences. In some organizational units, top management applied pressure for people to get more development, while in other units not much top-down interest was perceived.

Preparation for Others in the PMS

Interviewees were asked whether they saw training/development needs for PMS members other than themselves. Responses were fairly similar to the ones they gave regarding their own training/development needs. However, several points are worthy of emphasis.

Several people strongly emphasized the need for better communication skills. One deputy program manager said, "The nature of the PM business is to coordinate and communicate." A large proportion of many PMS jobs involves interfacing with other people. With respect to writing skills, a number of interviewees said that junior engineers do not write well. One supervisor said he had to have point papers rewritten an average of three times. A military officer suggested that every PMS member should be required to learn the format and style of the three or four pieces of basic correspondence used in a PMS. These include a naval message, letter, memorandum, plus a couple variations. He said there are some people who have worked in the PMS a long time and do not know this sufficiently.

Quite a few people mentioned the need for procedural knowledge with contracting/procurement and BFM again mentioned by far the most frequently. One person said that understanding the budget is the most important part of program management. Another person said that PMS engineers do little engineering and do mostly contract development and monitoring. He went on to say the typical engineer's only preparation for this job is attending a 1- to 2-day course for contracting officer's technical representatives (COTRs), and this course falls way short of what is really needed.

The need for cross-training of PMS members was mentioned in order to broaden people and also give better coverage for tasks when people are absent from the PMS. One military officer felt this was particularly important to give people an appreciation of what their co-workers do. This was related to a variety of other comments that suggested the average PMS member needs to get a bigger picture than he or she currently has. A number of people noted people who moved across several different jobs in NAVSEA seemed to have better chances for promotion than those who stayed in the same job.

One or two persons also mentioned the need for the following other types of training/development: time management, acquisition streamlining, contractor performance measurement (CPM course), and refresher training in engineering.

One person who now works outside the PMS in NAVSEA commented on the difficulty that functional specialists such as BFMs in the PMS have progressing into positions of line authority. Some prefer to remain specialized but others have the desire and talent to take on broader responsibility. Because the civil service system makes it very difficult to

break out of one's career field, this interviewee felt some explicit attention ought to be given to this issue.

Of the civilians who chose to comment, almost all shared the officers' point of view that it is not good to send officers to the PMS who have had no acquisition training or experience. They cited similar reasons; namely, that the job is too complex and requires additional skills that officers do not get in the fleet.

In general, people outside the PMS felt that PMS members ought to get more training/development. One PCO contrasted the amount of formal training received by the average person in his career field (procurement) to the average person in the acquisition management field. Personnel development in the procurement career field is extremely well organized, with a formal intern program, a defined career ladder, required courses, and administrative mechanisms to publicize courses and to track course completions, etc. He felt that the people in the acquisition management career field have been short-changed with respect to training/development.

Preparation of People Outside the PMS

The interviewees were asked what training/development key people outside the PMS need. A lot of people did not spend much time answering the question. Some felt they just did not know. Of those who responded, the most salient response pertained to the need for outsiders to gain a better understanding of what goes on in a PMS so they can do a better job supporting the PMS. Several people felt outside codes really impede PMS progress because of this lack of awareness. This perception was strongest on the part of top PMS management. A related set of comments pertains to the need for people in NAVSEA functional codes to get a broader awareness and more overview knowledge of the acquisition process. If PMS members are felt to be narrow, the people in functional codes are felt to be narrower yet.

Several people chose to comment on the performance of the NAVSEA procurement function (SEA-02). They felt the PMSs need more support from this segment. However, everyone who commented felt that the main problems in SEA-02 were understaffing and high turnover. Only one person mentioned the need for more training/development of procurement personnel.

One assistant program manager made a point of the outstanding support he receives from Navy laboratories and the NAVSEA field activities with which he deals. He said they are staffed with capable, well-educated people.

Mechanisms to Achieve Training and Development

Mechanisms to Identify Needs

Several questions were asked about the mechanisms in place to identify and meet training/development needs.

About half of the people said there were no mechanisms for identifying needs. Of those who said there were mechanisms, the ones mentioned included Individual Development Plans (IDPs), an annual training survey, discussions during performance appraisal, and ad hoc discussions with one's supervisor, usually initiated by the employee. An example of a good practice is a senior manager who holds discussions twice a year with his

subordinates regarding their careers. Almost all interviewees felt that the mechanisms for identifying training and development needs require improvement. In particular, a number of people said that the lack of a defined career ladder and suggested training makes it difficult to figure out what training and development are desirable from management's point of view. Of those interviewees who were asked about the Consolidated Civilian Personnel Office (CCPO) Resource Guide (1985), most (55%) said they had not seen it. This guide contains a list of competencies and suggested training for acquisition management personnel. Most of those who had seen it considered it useful. One of these said the following additions would make it even more useful: (1) a more complete set of available courses that match the competencies and (2) desirable job experiences. The guide is limited to training.

Mechanisms to Fulfill Needs

Most interviewees spent more time addressing this issue than any other issue in the questionnaire. In other words, the process of getting training or development was more salient to them than the issues of training/development content. With respect to mechanisms for fulfilling training and development needs, people recognized a need for a balance of training, education, and job experience. Their awareness of mechanisms varied a great deal. Some knew a lot about what was available, while others knew very little. Examples frequently given by interviewees of available training included courses run by CCPO, Defense Systems Management College (DSMC), the NAVSEA Institute, the Navy's school at Anacostia, and various courses offered by universities in the area such as George Washington University (GWU), American University (AU), and Virginia Polytechnic Institute and State University. Although the discussion was not directed at how good these courses are, almost everyone who had taken a DSMC course spontaneously mentioned how good it was. This was especially true for those who had taken the 20-week Program Management Course (PMC). The only criticism made by a few people was that, because the PMC is so long, very few people are sent. They suggested shortening the PMC to 10 or 15 weeks so that more employees could attend. Examples frequently given of available education pertained to several relevant degree programs such as those offered in the local area by University of Southern California, GWU, and AU. These were mentioned somewhat positively. However, one manager above the PMS level, a flag officer, criticized the courses and degree programs offered by non-DoD organizations, such as universities, because they are generally not sufficiently tailored to the DoD situation to be worth investing in. He felt that in-house institutions such as DSMC or the Naval Postgraduate School offer more worthwhile courses.

Examples frequently given of development achieved by planned job experiences include the Commander's Development Program (CDP) and the Weapons System Management Development Program (WSMDP). A couple of people also mentioned the Engineers in Training (EIT) program. These job rotational programs are very highly thought of, both by people who participated in them and by interviewees who just were familiar with the programs. Over 90 percent of the people who mentioned them did so positively. The CDP was seen as a highly desirable program in which to participate. One negative aspect was the small number of people allowed to participate. Another negative aspect was mentioned by a couple of nonparticipants. They considered their own promotional opportunities to be limited by the likelihood that CDP graduates would be placed in the jobs the interviewees aspire to. Experience in field activities and experience working in industry were mentioned very positively. Virtually everything that pertained to broadening job experiences was mentioned positively. Finally, a number of real success stories were cited of people who developed themselves, usually with some management support, principally via on-the-job training (OJT). Approximately seven of the interviewees could

be categorized in this way. Some of these involved clerical personnel who, by taking on more responsibility and learning on each job, eventually attained fairly senior positions in areas such as budgeting and logistics. One or two engineers also worked their way into other areas such as BFM. Often this OJT was supplemented by some formal training but clearly the majority of learning actually took place on the job.

In answer to the question of how easy it is to avail oneself of training and development opportunities, on the average people said it was generally difficult with some exceptions. Five people said that they could get almost all the training and development they need if they put their mind to it. In other words, in their eyes, it takes a fair amount of individual initiative and drive, but it is possible. Also, on the average it was easier for members of one of the PMSs than for members of the other.

Interviewees gave the following impediments to getting adequate training and development with the first one clearly mentioned most often; the rest are not listed in order of response frequency because they were mentioned with approximately equal frequency.

1. High workload. The fact that high workload precludes people taking time off the job for training or development was brought up over and over again. Sometimes official requests for training were denied due to high workload. Usually this seems to occur between the employee and his/her immediate supervisor. In other words, the perception is that training requests, when officially denied, are most often denied by the employee's own supervisor. This is not seen as part of a nonsupportive attitude of the immediate supervisor but because the immediate supervisor is under pressure to make sure the work gets accomplished. In a second set of dynamics, the employee's request for training is approved by management. However, a work-related crisis occurs at the last minute, and management cancels the employee's training. In a third set of dynamics, which is the most frequent, employees simply do not request training because of the large workload. Sometimes employees feel that they will be putting too much pressure on themselves because backed-up work or unmet work requirements will damage the program. Employees may also feel guilty for putting their supervisor under the added pressure of figuring out a way to get at least part of the work covered during their absence. These three sets of dynamics in fact seem to interact. Employees who have been denied training once or twice due to high workload are much less likely to press for training in the future. Sometimes even observing fellow employees' experiences in this regard has had this effect.

2. Lack of money. Eleven people cited lack of money as a problem. Some people have had all their training requests funded. In general, management did not feel this was as much of a problem as those not in PMS management. However, one program manager pointed out that, because of continued low use of the training budget, the training budget has been lowered over the years. He felt that, if pressure were exerted to increase the training budget, gradually more money would be dedicated for this purpose. Another officer pointed out that limitations in travel funds made it difficult to send enough people to visit the fleet to see their products in action and learn more about fleet needs. He felt this was a very unfortunate limitation.

3. Lack of managerial support and encouragement. Some managers consider training and development to be relatively low priority items. This relates strongly to the need to get the work done under conditions of inordinately high workload (item 1). The extent of this perceived problem varied considerably. Some organizational units and subunits perceived that they had very high management support. As a generalization, top PMS management supports training and development more than does middle management

due to the workload issue. One person observed that, if managers who keenly feel a shortage of people are ordered by superiors to send people to a training course, they will pick their least competent people to send. Obviously, this is very counterproductive in the long run.

4. Lack of employee motivation. Some PMS managers expressed the feeling that quite a few employees are not motivated to get training or development. For example, one top PMS manager expressed frustration that too many employees are content to remain "narrow." Moreover, he felt that many of them were not interested in training unless it was tied directly to promotion. He cited specific examples of employees resisting him when he tried to send them to training. Managers recognize that the prospect of work piling up is a major demotivator. However, top managers felt that employees must learn to overcome the perception that business will stop if they absent themselves for awhile.

5. Lack of publicity and awareness. Many more training and development opportunities exist than most people realize. The average interviewee had a very limited idea of available resources. Quite a few people had at least seen the CCPO and NI course catalogs but there was variation. Some people see them periodically, and some have never seen them. However, publicity for courses outside the Navy is much less prevalent. One person commented that even those training announcements that circulate are easily buried in the avalanche of paper that routinely appears on his desk. One PMS dealt with course announcement availability by assigning an administrative assistant the collateral duty of training coordinator. The functions included keeping copies of the major course catalogs and circulating course announcements in a timely fashion. This practice was seen as very helpful by members of that PMS.

6. Lack of lead time to sign up. Ten people brought this up. Quite a few of them cited specific examples of receiving training announcements either after the deadline to sign up or just a few days, or even hours, before. This makes it impossible to sign up no matter how desirable the training. Not only does this impede the training process but it is also a source of irritation to PMS members. Often this happens because the announcements are sent to the PMSs at the very last minute.

7. Requirements for employees to use their own time. Some training and educational opportunities require employees to take their own time. An advantage of this practice is that it does not require taking time away from the job. However, for some employees, this requirement is impossible because of constraints such as car pools, child care, working hours that are already long, etc.

The issue of high workload was the most frequently mentioned issue across the entire set of questions in the questionnaire. Most people felt it was essential to address this issue if any realistic progress were to be made in enhancing training/development in the PMSs. The saliency of this issue to the interviewees cannot be overemphasized.

NAVSEA Institute

One question specifically asked about people's awareness of NI. The management of NI was interested in this information because they had some data that suggested that PMS personnel participated in NI less than did the personnel in NAVSEA technical codes.

On average, the interviewees had a somewhat low awareness of NI. Ten percent had never heard of it. Thirty percent had heard of it but had never seen the course catalog

and did not know what NI offers. Others were familiar with NI but chose not to participate because they believed that NI courses covered detailed engineering and scientific topics which they did not need. Only four interviewees had ever taken an NI course. Most people in the PMS believe that they need more education on management and procedures. Several people cited a 1-week course that NAVSEA used to offer a few years ago as an example of the kind of course that would be very useful to PMS members. They had taken it themselves and rated it highly. It was a Navy system acquisition management course with a lot of emphasis on the Planning, Programming, and Budgeting System (PPBS). However, this course was discontinued for some reason, and these interviewees felt that a similar one should be reactivated. NI now offers one course that is somewhat along these lines, "Ship Acquisition for Engineers," which a few PMS members have taken and found to be very useful. This desire for more management type courses is supported by the results of a survey of user needs done by NI recently.

The few interviewees who had taken any NI courses had usually done so in response to a specific need to know something within a particular technical field because of job requirements. For example, one person was given a new job assignment that required he know something about some technologies with which he was not familiar. Therefore, he took an NI course on the topic. In these few instances, NI courses are seen to be useful to PMS members. Several people commented that NI was very good for people in technical codes.

Additional Issues

Attention to Acquisition Professionalism

Recently a lot of public, Congressional, OSD, and SECNAV scrutiny has been given to improving acquisition professionalism. The interviewees were asked if they believe this attention will make a difference and whether they feel personally affected by it. Everyone was aware that a great deal of attention was being paid to the topic; however, more than 80 percent of interviewees were not aware of the detailed effects. They had fairly fuzzy and sometimes erroneous conceptions of the new laws, policies, and programs that had been put in place or were being considered. For example, only four people seemed to have a thorough understanding of the Materiel Professional (MP) program. The MP program has been in existence for over a year to create a career path for Navy officers working in the acquisition field. Even some of the officers interviewed had little idea how the MP program operates. Almost all, however, liked its concept. The majority of people felt the impact of this attention to acquisition professionalism could be positive, but remain skeptical about how much is going to come to fruition. Since so few people had any detailed knowledge about these matters, few felt they could judge the specific likely effects.

Training and Development for Military versus Civilian Personnel

Questions were asked about the similarities and differences between military and civilian training/development for PMS positions. Many interviewees chose to address this topic and, in some instances, gave emotional opinions. It is clear to everyone that there are some definite differences between the two systems. These differences stem from some fundamental differences in the way the two groups of personnel are administered from a career and utilization standpoint.

To summarize the findings in these areas, the large majority of civilians thought that officers got better training/development than did civilians, while about half of the

officers said that they thought civilians got better training/development than they did. The opinion of these officers, however, was targeted at the requisite preparation for acquisition management jobs, not at the preparation for a Navy career generally. Their feelings were based on the fact that virtually all PMS civilians already had acquisition-related experience, while a number of the officers were interjected into the PMS without any training, education, or experience whatsoever.

The civilians' perceptions were based principally on the fact that, in general, a lot more time and money is spent developing officers than civilians. First, officers are systematically rotated to give them a very wide perspective. Second, the Navy invests more money sending officers to formal education and training programs than it does for civilians. Even within the PMS itself, some civilians perceived inequitable treatment in sending civilian versus military personnel to training. Military personnel are perceived as less likely to be denied training due to funding constraints or high workload. One civilian PMS manager said that civilians are frequently, and sometimes repeatedly, denied training because of high workload. He had a required development course cancelled by the PM four times because he was considered indispensable each time. This perceived disparate treatment does not sit well with some PMS civilians. Moreover, disparate treatment in this regard is the perception of most of the senior civilian PMS managers; it is not just limited to the rank-and-file civilians. For some interviewees, it merged into a more general perception of being treated as "second class citizens" and some general feelings about the management style of some of the military managers.

The large majority of people who commented did feel that the military and civilian utilization patterns complemented each other well. The military personnel bring to bear an understanding of fleet needs, while the civilians provide the continuity and corporate memory. Both contributions are needed.

Unique Versus Generic Needs

A question was asked about whether the training/development needs of the PMS members are typical of other program offices inside and outside NAVSEA or whether the needs are fairly unique to each program office. More than two-thirds of the people felt they did not have an adequate experience base to answer. Most had worked in only one or perhaps two PMSs. Few had worked outside NAVSEA in other Navy systems commands. However, most of those who had a broader perspective said the training/development needs across program management offices tend to be more similar than different. One person said that the NAVSEA program offices have more training/development needs than those in NAVAIR because in NAVSEA they work on a larger variety of systems.

Impact of the Program Phase

Interviewees were asked if the phase of development of the program makes a difference in training/development needs. Again, a certain number of people lacked the perspective to be able to answer the question. The majority of those who answered felt that the program phase makes a difference in the training needs but not an overwhelming one. One person pointed out that typically engineers work in the R&D, concept-exploration end of the program continuum. If they find themselves working at the production end of the continuum, they are often unprepared. Another person said that, at the beginning of a program, you need people who have strong planning skills and, near the end of the program, you need people who understand the waterfront and the production business.

Demographic Analysis

Several breakdowns of the responses were done by various demographic distinctions. The responses were compared in terms of: (1) civilian versus military, (2) PMS management versus PMS rank-and-file, (3) interviewees in the PMSs versus interviewees outside the PMS; and (4) job functions of the interviewees (e.g., logistics, financial management, procurement). For the most part, no differences were found. In particular, there were no significant differences across any of these groups in their perceived needs for more knowledge and skill in management and procedural practices pertaining to acquisition. Also, there was no difference in the perceived impediments to training and development. There were, however, a handful of differences as follows:

1. The military interviewees, even more than the civilians, emphasized the need to give people training and development that broadens them and gives them a wider perspective.
2. PMS management, even more than PMS rank-and-file, also emphasized the need for broadening training and development.
3. Some of the more specialized job functions have some specialized training and development needs. Examples include clerical staff, BFM, foreign military sales.
4. People outside the PMS put more emphasis on the need for PMS personnel to have better communications skills (e.g., speaking and writing ability). One very high level person characterized the function of a PMS as a "PR house."

CONCLUSIONS

The training, development, and job experience needs of PMS personnel pertain primarily to management methods and procedural knowledge. Most people feel these needs are not being met adequately. The predominant reason is high workload. However, the existing mechanisms for training and development were also felt wanting. There is very little perceived need for further technical training.

As a result of the current intense interest in upgrading acquisition management skills and abilities, particularly in program offices, the climate is particularly auspicious for PMS and corporate management within NAVSEA to promote training and development initiatives aggressively. Within NAVSEA, there is clearly an appetite to take more initiative in the area of training and development. In both the PMSs studied, management had a desire to pay more attention to this issue. Similarly at the NAVSEA corporate level, there is a groundswell of interest in developing and improving training policies and programs, particularly in the area of acquisition management. If ever there were an ideal moment within recent NAVSEA history to take action in this domain, that moment is now.

On the other hand, while the appetite for improvement is there, the environment offers new obstacles to success. One major set of obstacles pertain to lowered resources. Various factors--such as Gramm-Rudman-Hollings, lower increases in the defense budget, the President's requirements for major improvements in government productivity by 1992--mean less money will be available. At the same time, the workload will stay the same or may even increase. Even worse, under declining budget conditions, training and development resources are usually among the first to be reduced. Another set of obstacles pertain to what can be termed a vicious circle. The dynamics of the vicious

circle are shown in Figure 1. Currently, management levels above the program offices change procedures--generate individual procedural fixes--almost every time an error becomes visible. This has made the acquisition system increasingly cumbersome and greatly increased the amount of knowledge PMS members must have. A partial solution to breaking out of the vicious circle is to improve employee development and thereby generate outside confidence in the competence of the personnel in the program offices. Therefore, the challenge is to improve PMS employee development during a time of increasingly scarce resources and more procedural demands on the PMS. This requires creative approaches.

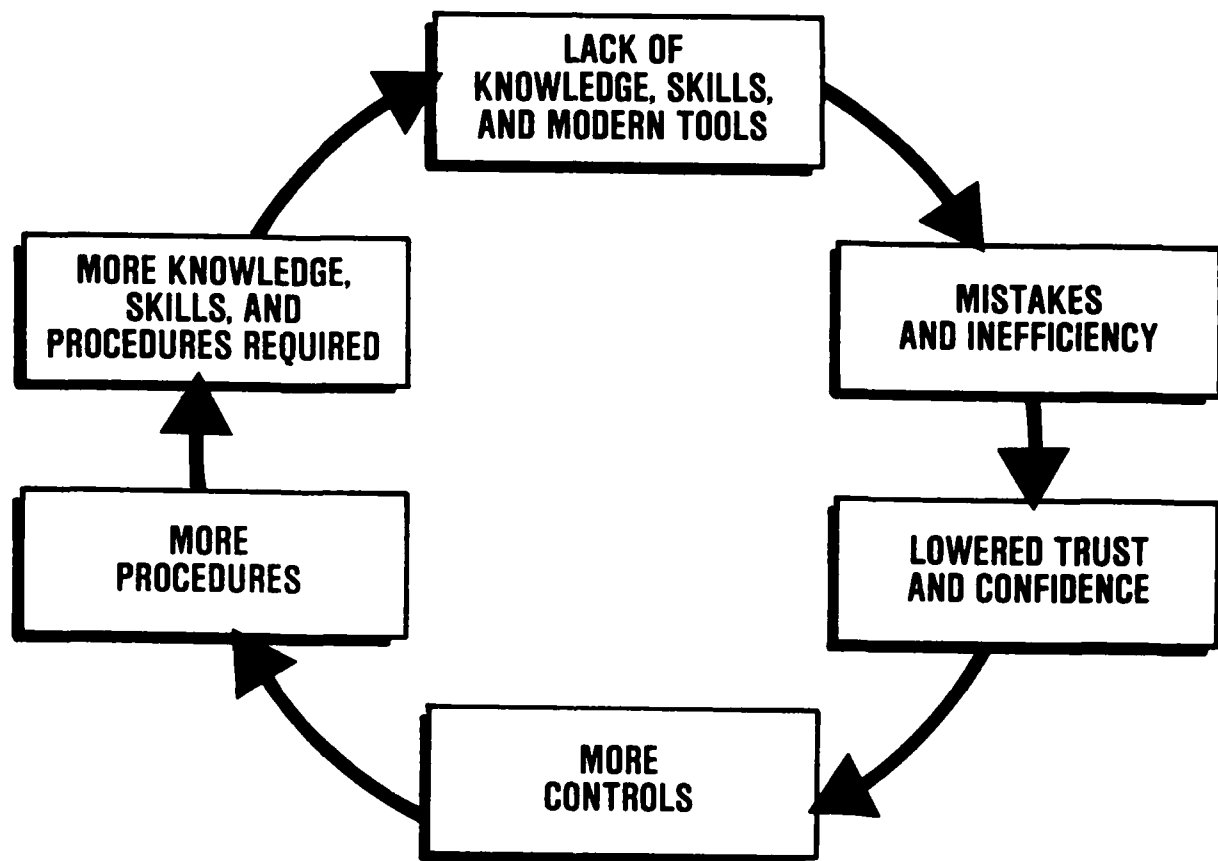


Figure 1. Dynamics of vicious circle.

RECOMMENDATIONS

The recommendations made below are for two somewhat distinct groups of people in NAVSEA:

1. The "corporate" management and staff who have the overall responsibility for setting training and development policy, making resources available (e.g., courses), and publicizing them. Their main interest is in knowing what the overall needs are and, therefore, they are particularly interested in training content.

2. The PMS managers and staff for whom training process issues are most salient. The principal issues facing them are mechanisms for (a) identifying individual needs and (b) making people available for training.

Recommendations 1 through 5 are of particular interest for NAVSEA corporate management; recommendations 7 and 8 are of particular interest for PMS managers; and recommendations 6 and 9 through 12 are directed to both NAVSEA corporate management and PMS managers:

1. **Develop a better resource base of training, education, and development opportunities in the areas identified by this study, especially in management and procedural knowledge and practices pertaining to acquisition. NI should take a lead role in making this type of instruction available.**

This report has already identified quite a few specific training development needs. Two additions should be considered. Only two people suggested time management courses as a training need. However, given the demands on almost everyone's time and the need to improve efficiency, this is something many people ought to consider. Also, although no one mentioned stress management, a fair amount of continual stress is associated with many PMS jobs. Material on stress management ought to be another training need to consider.

The NI can play a larger role in acquisition management training. Currently, its role is perceived as primarily dedicated to technical training. Since NI already exists--has a charter, staff, and mechanisms in place--it would seem relatively easy to expand its role. If NI's role expands, this change and its course offerings must be publicized widely.

Scheduling also needs attention. Excellent opportunities are sometimes lost due to scheduling. One particular opportunity is getting new people, both civilian and military, to needed training before they start their jobs. This avoids the difficulty of prying them loose after they become heavily involved in the day-to-day PMS routine.

2. **Consider obtaining more detailed information about the types of instruction and development needed in order to be able to offer resources that are fully responsive to the needs.**

The results of this study have indicated general categories of need. A follow-up with a structured survey of a randomly drawn sample of PMS members could yield more precise information for curriculum planning by NI and others.

With respect to training courses, several interviewees made excellent suggestions about delivering training in short chunks. One person suggested that NAVSEA sponsor a monthly seminar with a guest lecturer--for example, a Congressman, an Assistant Secretary of Defense or Navy--to give the perspective from the top. Another person suggested giving procedural training--for example, on the PPBS a half-day per week for several weeks in the NAVSEA buildings. A third person suggested that a course on the acquisition management system as it pertains to NAVSEA be given in the NAVSEA buildings one night per week for 10 weeks. (The "Ship Acquisition for Engineers" course is already given along these lines.) These suggestions with many possible variations revolve around the need to deliver some training in short chunks of time and in easily accessible locations.

3. Define a career ladder in acquisition management.

The need for a career ladder in acquisition management has already been mentioned several times. To the extent possible, the career ladder should describe competencies or desirable job behaviors and skills at various levels and associated training and development. Since one PMS, CCPO, and NAVAIR have all already done something along these lines, some relevant documents exist.

A civilian career field that is recognized by many as the best organized and managed in the DoD is the procurement career field. Some of the practices for managing this career field should be employed in the acquisition management career field. One of these is a defined career ladder with associated training and development.

Also, better use and more extensive use should be made of the CCPO Guide. It contains information valuable for career planning for those in the acquisition management field.

4. Give wider and more timely publicity for existing resources.

A lot of good training/development resources already exist, and these should be publicized and made more accessible. This is true not only of courses but also of developmental assignments that are not part of a formal program. Not only should more resources receive wider publicity but also a concerted effort should be made to notify people sooner than is generally done now.

5. Consider using adult learning approaches.

Another observation is that adult learning differs from the traditional modes used to teach children. A primary distinguishing feature is that adults are motivated to learn principally if they can see some direct benefit for their job, a future job, or some other aspect of their lives. Therefore, it is very important to tie learning experiences as directly as possible to job requirements. This also supports Recommendation 9, which advocates use of the management development systems approach.

Another observation is that, above and beyond identifying individual needs, a climate to encourage an appetite for lifelong learning must be created. Until approximately 20 years ago, the prevailing conception was that children needed to be taught as much as possible for use when they became adults. However,

that conception has changed. It is now recognized that adults continue to learn, need to continue to learn, and their approaches to learning vary considerably from the approaches of their childhood. Establishing an organizational climate in which continuous employee development is expected and encouraged should be a goal of NAVSEA corporate management. This goal goes beyond the nuts and bolts of a training and development system and conveys the attitude that continual learning is exciting and desirable. While it is unrealistic to expect an overnight transformation in attitudes, keeping this ideal in mind at least gives corporate management a goal to aim for.

6. Expand the systematic use of job experience.

With respect to new resources, it would be highly desirable to expand the use of job experience: OJT, cross-training, developmental assignments, and formal rotational programs. For rotational programs, it is recommended that consideration be given to a modest expansion of CDP and WSMDP.

7. Create or enhance institutional mechanisms for identifying individual training and development needs.

It would be helpful to have at least one mechanism routinely used across all PMSs and perhaps even across all of NAVSEA. One possibility is the Individual Development Plan (IDP). This has been used in the past but has fallen into disuse. The IDP form and process therefore should be redesigned and perhaps even renamed to make it a usable and used mechanism.

8. Recognize individual differences in the type of training needed and in the best method for learning.

Individuals differ not only with respect to the kinds of knowledge and skills they need, but also with respect to the way they learn best. For example, some people learn better from classroom training while others might learn the same information better from OJT. Identifying these learning differences is an important part of the needs identification process.

9. Adopt an approach modeled after the state-of-the-art in management development; namely, a management development systems approach.

Pence (1983) compares the more traditional "management education approach" to the state-of-the-art "management development systems approach" as follows:

Programs representative of the management education approach are characterized by:

The use of fairly generalized developmental objectives.

A focus on improving knowledge without skill development.

A lack of assessment of participants' individual management development needs.

Limited integration of the educational experience with on-the-job experience.

In contrast to the characteristics outlined above, programs which are representative of the management development systems approach usually display the following characteristics:

A needs analysis which identifies behavioral competencies related to achievement of organizational objectives.

A bottom line "results" orientation.

The use of individual development plans tailored to the needs of individual managers.

An integration of classroom experiences with on-the-job developmental activities.

The use of performance-based instructional methods which facilitate skill development.

Integration of management development and career planning systems. (Executive summary)

The key differentiating factor between the two approaches is that the state-of-the-art approach closely integrates training/development with managerial behavior and the achievement of organizational goals. Preliminary data suggest that the state-of-the-art approach is more likely to produce actual change in managerial performance than is the management education approach.

10. Make training and development an integral part of the organization's normal planning processes and goal setting, both at the NAVSEA corporate management level and the PMS management level.

The main point here is that it is crucial not to treat training/development in isolation, as a goal unto itself. It is a means to an end. That end is to meet the mission and organizational objectives through improved employee performance. Then, training becomes a part of the mission and is consistent with the mission. This makes training much easier to justify in an era of shrinking resources. The role it plays can be described cogently to higher management and to the members of the PMS as well.

A related point is that training/development initiatives should come more from the "top-down" than from the "bottom-up." Right now in some cases, they are top-down but the dominant mode is bottom-up. That is, a lot of training and development is the result of the individual initiative of employees. Employees select training/development based on what they think would be personally beneficial coupled with their best guesses of what management thinks is desirable and would benefit the organization. There is certainly some benefit to a bottom-up flow, since individuals know themselves and their work situations better than anyone else; to stop this flow entirely would be a mistake. However, it would be better to have the dominant flow be top-down, supplemented by some bottom-up tailoring. In this model, top management in NAVSEA, along with PMS management, would decide generally the training/development that would be desirable for different levels and jobs in support of specific management goals. This information would be disseminated to PMS employees periodically.

It cannot be overemphasized that training/development must be tied to existing management functions and processes. If not, it will continue to be considered a good topic for managers and employees to pay attention to whenever time becomes available, which is rarely.

Figure 2 displays a training and development model that delineates two separate processes. One identifies training and development needs. The other addresses the availability of adequate resources. As with any model, however, it is oversimplified. In reality, the components are more complex and interactive. For example, the availability of courses is likely to color the perceptions of training needs because people are more likely to think of those needs rather than ones for which a course does not exist.

An important component to the model is the evaluation step. Evaluation provides feedback to constantly improve the training/development process. The process is highly iterative and is going on constantly, which provides lots of opportunities for improving and refining it. Also, objectively the training/development needs will change over time, so it is important to continue through the entire cycle. Evaluation of training/development is not particularly easy, but even a subjective evaluation by participants and their supervisors is useful. Rigorous evaluation is possible in some instances but, when it is not, people must exercise their own good judgment and common sense.

11. Utilize successful practices and resources already developed elsewhere to the extent that they are appropriate.

A host of successful practices have been instituted elsewhere that are probably fairly applicable to the PMSs. Examples include the Acquisition Management Career program under development in NAVAIR, several practices in SEA-02 that promote a strong training/development orientation and climate, one of the PMSs has a 1-hour seminar each month with a key support person from NAVSEA (e.g., legal, security, office space, and equipment), and the NAVSEA test and evaluation (T&E) symposia. With respect to the latter, the PMSs could have their own set of symposia on topics of interest to PMS members.

To accomplish this requires information about what is done elsewhere in NAVSEA, other SYSCOMs, and in other DoD activities. Such information is not readily available. A natural phenomenon of any large organization is how little the various subunits know of each others' activities and methods. PMS management can gather such information on an ad hoc basis and probably can learn a surprising amount this way. They should be encouraged to ask about other organizations' training/development approaches whenever feasible. However, at the same time, it would be desirable to introduce more systematic methods for sharing this kind of information. A number of alternative methods exists, none of which is mutually exclusive. This could be made a discussion item at meetings of higher levels in NAVSEA, someone could be assigned to a special project to gather and disseminate such information, or this could be made a routine responsibility of a unit that already has a training/development charter.

The Acquisition Career Management Board, which consists of a senior civilian from each of the three hardware systems commands, could make it a goal to gather and share such information. It exists for the purpose of fostering better career development of personnel in the acquisition management field. Due to

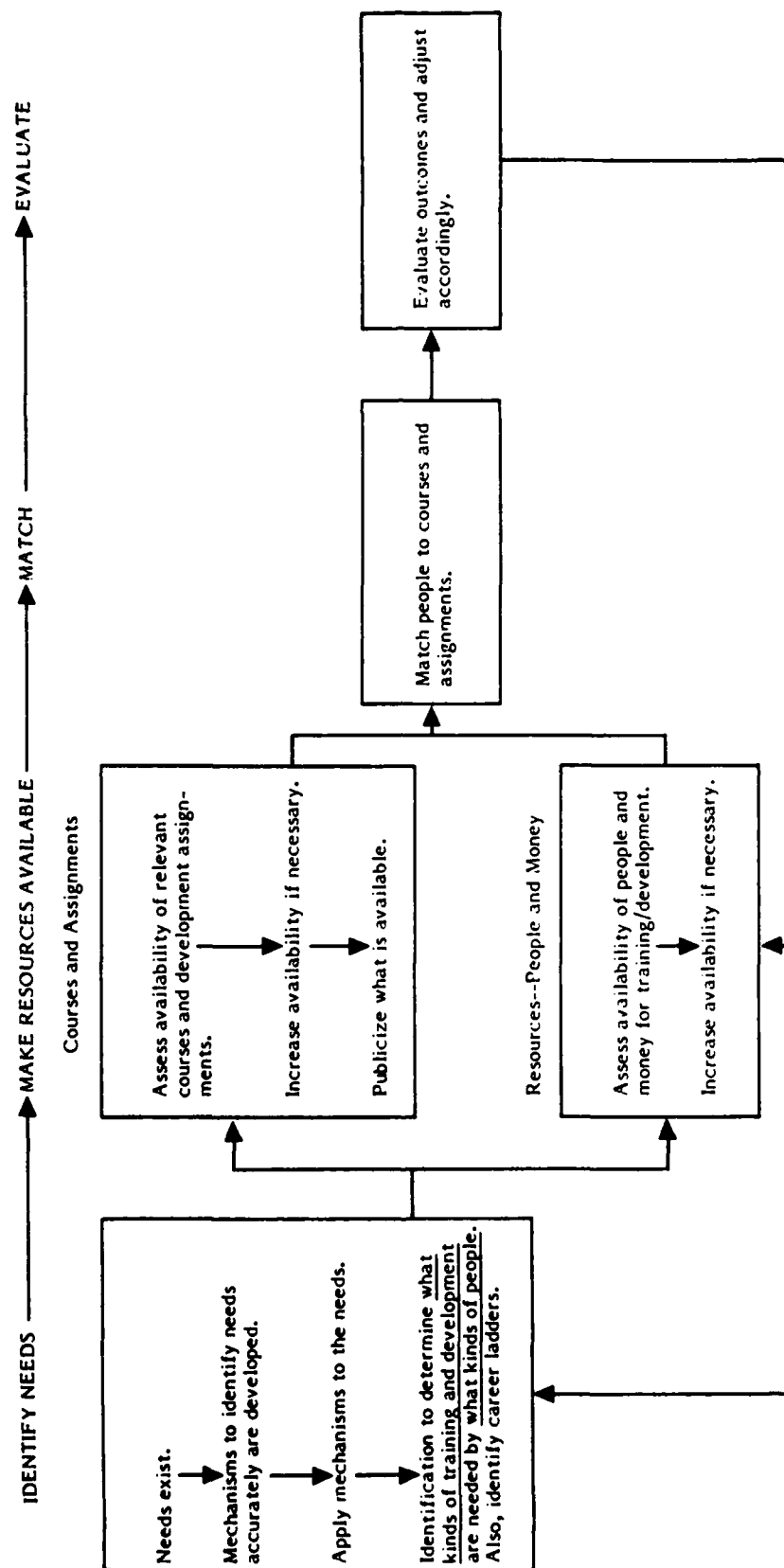


Figure 2. Training and development model.

several major re-organizations (e.g., the disestablishment of the Naval Material Command), the board has not been active lately. However, since it already has a charter and members, it should not be difficult to re-energize it. The board members are individuals who already understand the need to improve acquisition career management in the Navy. Moreover, the CCPO now reports to NAVSEA. The CCPO logically could play an active role in assisting in such information sharing. Therefore, NAVSEA should take the lead in reactivating the board, and one of its main functions should be to share information on good practices in the training and development of acquisition management personnel.

12. Expand the use of nontraditional methods of teaching and instruction.

The interviewees as a whole had a fairly conventional and limited view of what is possible in training/development. Their mental model of training/development is to send one person off to a course, to a developmental job assignment, or to a rotational program such as CDP. Along the same vein, this mental model seems to be principally the "management education approach" just described. This approach is geared more toward improving people's general knowledge base than toward changing specific behaviors tied to specific organizational goals. While in some instances improving general knowledge is a good thing, this model misses many other opportunities, some of which are particularly applicable to the PMS situation.

This section addresses some of the nontraditional methods for achieving training/development and is by no means exhaustive. It provides an initial list of opportunities and tries to encourage creative thinking about training methods.

a. Use of group training and education. All the discussions of training, education, and development by the interviewees centered on training individuals. No one mentioned the idea of training people in groups. Although sending groups of people off on experiential job assignments would probably be impossible, most other types of training and education lend themselves well to group administration.

Group training represents some very powerful opportunities. A key factor underlying PMS success pertains to group functioning both in formal groups (i.e., the formal PMS or its subunits) and informal groups (i.e., the teams and coalitions formed within the PMS and among PMS members and key outsiders). Group training can achieve several objectives simultaneously. First, it can provide the same knowledge base to the group, ensuring that everyone in the group is "reading off the same sheet of music." Second, it can be more economical. Bringing an instructor in to do a dedicated course usually means a reduced rate per employee and also avoids sending people away from the office, sometimes on per diem. Third, and most important, if conducted properly, it can foster powerful group dynamics that will continue in the organization, sometimes for years. This is particularly true for training that specifically includes some teambuilding. Some types of teambuilding training are nothing more than introducing ways to break down existing barriers to routine communication. Other teambuilding training is more subtle but powerful (e.g., by including techniques for developing cooperation and collaboration toward achieving group goals).

b. Self-administered instruction. Virtually no mention was made by the interviewees of the use of various types of self-administered instruction. However, with low training resources, these are good methods to consider. First, this type of instruction is usually much less expensive than classroom instruction. Second, it is usually self-paced. This means that it can be taken in small time chunks and, therefore, does not necessitate taking people away from their job for days or weeks at a time. Some self-administered instruction can be merely formally agreeing upon doing a list of readings. Some consists of hard-copy formal programs with test items (e.g., correspondence courses). Some consists of computer-based instruction (CBI). With the advent of office automation and home computers, the use of CBI is expanding and is a very attractive option. CBI can incorporate many features that are difficult to attain in hard copy. It can be interactive and, therefore, hold the learner's attention. CBI can more easily customize the training to the student's ability level. It can easily test and give feedback. With the advancement of videodisk technology and graphics software, CBI can make highly effective use of diagrams, static and moving pictures, and sound. CBI can be embedded into office automation so that training can be an automatic feature of any new instruction that might be sent via electronic mail for example. Since acquisition procedures are constantly changing, the CBI would need constant updating. However, with recent advances in software authoring packages, this is becoming progressively easier. CBI has vast and perhaps revolutionary potential as a training mode for PMSs, and steps ought to be taken to begin tapping that potential. One strategy for doing so is to select one or two PMSs as prototype sites.

c. Personal goal-setting. Many PMS members have only vague goals about career development and are uncertain about the wherewithal needed to achieve those goals. This is more true of civilian personnel than it is for military personnel because a great deal more structure and policy is established for military than civilian careers. From a career standpoint, the civilian acquisition management field is one of the least structured in the Navy. The need for management to define some career structure and the associated training and development has already been discussed. However, individual development is not solely the responsibility of management. It is shared between management and the employee. Therefore, it is incumbent upon employees to show initiative in getting the training they need to perform their present job better as well as to get the training to prepare them for the jobs to which they aspire.

In general, most PMS members have not had any specific educational experiences that taught them how to set personal goals, how to plan for a career, and how to achieve those goals. Only one interviewee mentioned having been taught those skills. He said a 1-week goal setting course changed the course of his whole career (for the better) because it taught him that he could take control of his career. Many PMS members seem to lack the perception that they can significantly influence their own career destinies. Most of them clearly lack the explicit tools to execute a career plan despite the fact that resources to teach these tools, both courses and reading material, are available. For example, the books, What Color is Your Parachute? (Nelson, 1982) and Personal Vitality (Miller, 1977) deal with this topic well.

Progress toward changing this situation seems to be slightly impeded by the propensity of some PMS managers to blame the PMS employees and the propensity of some employees to blame management. Some managers feel that

opportunities for development and advancement exist if only more employees exhibited the initiative to go after them. Some employees feel that management must not care about career development if they have not bothered to introduce any career development patterns, any systematic methods for identifying employee training needs, etc. The fact is that this is a shared problem. Both employees and management must contribute equally to overcome it.

d. Networking. Networking is often a result of training and represents an opportunity for continued learning. One of the most valuable potential outcomes of attending a course is the chance to get to know other course attendees. These course attendees often come from a variety of similar organizations. As a group, they usually have hundreds of years of collective acquisition experience. Sometimes, the structure of the training allows for some exchange of knowledge among the students. Sometimes it does not, but there are usually opportunities during breaks or before and after classes to get to know one's classmates and share experiences. These shared experiences can be quite enlightening and sometimes can be as valuable as the formal instruction. Attendance at residential programs, particularly for two or more weeks, allows for an especially high degree of collegial exchange and usually results in interpersonal bonding as well. In other words, friendships are formed, some of which may last a lifetime.

The development of networks can serve people greatly. These networks are information banks that can help PMS members in many ways; for example, by acquiring new ideas on how to deal with an issue, getting a wider perspective on the environment and reasons for various constraints, receiving information on how to deal with constraints successfully, and receiving advance warning that will enable them to head off a problem. Almost all the interviewees who participated in either residential training or in a rotational development program such as CDP cited networks as a major benefit of their participation. Unfortunately, only a small proportion of PMS members have had such opportunities. On the average, most of them have a limited perspective based on working almost entirely within the NAVSEA arena. Most of them did not seem to know many colleagues who work in counterpart organizations. As a result, most did not feel they knew a lot about how their counterparts in other organizations deal with the same issues. Many of them use networks extensively within the NAVSEA world; it is really a matter of helping them expand their networks. Participation in a training course or rotational program is not the only way networks can be expanded, but it is among the easiest because networks seem to be a natural by-product.

e. Mentoring. State-of-the-art development programs often use mentoring in conjunction with broader training and development initiatives. Mentoring means assigning employees to a given mentor (usually a volunteer). The mentor helps to guide the employee's career development and/or teaches the employee some of what the mentor knows, particularly unrecorded knowledge or wisdom. Obviously, mentoring can be used in a variety of ways and for a variety of purposes. It is mentioned here because it is one more way to expand the perspectives and horizons of PMS members and to create motivation and a sense of excitement for learning and career development. Mentoring is already used in NAVSEA as part of CDP.

f. **Cross-training.** A few interviewees strongly suggested the need for cross-training within PMS. Cross-training can serve a number of very useful purposes simultaneously. First, it is a means of giving people more knowledge without having to lose them from the office for a period of time. Second, it increases communication and cooperation. Third, it increases management's flexibility in assigning work. Fourth, it increases management's flexibility in letting employees off the job to go to courses or to experiential assignments. The benefit of experiential assignments is particularly salient here. If several people are available to cover at least parts of a particular job, most employees would be less reluctant to leave and fewer supervisors would object. Thus, cross-training not only results in more direct training of employees, but it also frees employees to take more advantage of training opportunities elsewhere.

TACTICS FOR PROCEEDING

In order to seize this initiative corporately, the following steps should be taken simultaneously:

1. Top NAVSEA management should publicize its interest in and support for employee development, especially in the acquisition management career field. It should also increase the publicity about existing training/development opportunities. The Observer should be used more in this regard.

2. PMS management should incorporate the training and development issue into its routine planning processes and develop a system to tie this issue directly into its mission. Middle PMS management should be involved in developing training/development systems. A fatal mistake in many organizational improvement efforts is for the unit's top management not to involve middle management. In this case, due to the high workload issue, middle management must help develop mechanisms that they believe will work.

3. This step is related to Step 2. It involves designing a balance of training/development delivery mechanisms that can help the PMS break out of the vicious circle (Figure 1) and can be shifted over time as progress is made. The short list of types of delivery modes below is given in approximate order of how much time is required away from one's job (from none to a lot).

- a. OJT/cross-training
- b. Self-paced material/courses
- c. In-house seminars
- d. Short outside courses (2 weeks or less)
- e. Long outside courses or developmental assignments

To deal with the impediments to training, it would be advisable to have a higher proportion in the first three delivery modes and gradually work toward achieving a balance over the five categories.

4. Management's steady commitment to employee development should be ensured. Top management's attitudes (PMS management or above) make a big difference. Employees have periodically witnessed major swings in the amount of support for employee development. One way to achieve some reasonably steady state is to increase slightly the responsibilities of the senior civilians in this area because military personnel rotate frequently. Senior civilians rotate but they are more likely to stay within NAVSEA and

provide the continuity needed for management policies and programs. Discipline should be injected into whatever employee development systems and programs are developed. Various employee development requirements and programs have come and gone. Some remain in effect but are not consistently implemented. A paper system is worse than no system because it raises and then dashes employee expectations. So a final word of caution is that follow-through past the initial wave of energy and enthusiasm is what will make a difference in the long-run, and the long-run is generally what employee development is all about.

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APPENDIX A
PMS EDUCATIONAL NEEDS ANALYSIS INTERVIEW QUESTIONS

PMS EDUCATIONAL NEEDS ANALYSIS INTERVIEW QUESTIONS

INTRODUCTION

A study is being conducted to help NAVSEA get a better idea of what types of training, education, and experience are needed for people working in PMSs. The primary method of obtaining this information is by interviewing a cross-section of people in two representative PMSs. These questions are being provided in advance to give you a chance to give them some prior consideration and summarize your thoughts. There are quite a few questions, and you do not have to address them all. Please address each one to the extent you think you have useful information and ideas to contribute. The most important of the questions is Question #2. The interviewers have allotted up to one hour for each interview. You may take as little or as much time as you like within that time frame. Keep in mind that the study covers all types of education, including specific job related training, broader educational courses, and job and/or life experiences.

QUESTIONS

1. Background--Please summarize

- Current job. What do you do? How long?
- Career path. What have been your past assignments and jobs? For approximately how long?
- Formal training and education. What academic degrees do you hold? What training courses have you taken?

2. Preparation for current job

- What experiences (job or other life experiences), education, or training have prepared you for your current job?
- What types of tasks or situations were you not adequately prepared for? Would some type of experience, education, or training have helped? If so, what? What has been the impact of not being adequately prepared?
- What kinds of experience, education, or training would you like to get now to improve performance in your current job? To what extent do you expect to receive them and why?

3. Preparation for past jobs that were related to program management work

- What experiences, education, or training prepared you for past jobs?
- What types of tasks or situations were you not adequately prepared for? Would experience, training, or education have helped? What was the impact of not being adequately prepared?

4. Preparation for career change or progression

- What kinds of career/job changes or progression are you aiming for, if any?
- What kinds of experience, education, or training would best prepare you? Why? How likely are you to get it and why?

5. Preparation of others in PMS

- Are there deficiencies in the experiences, education, or training in other areas of the PMS outside your own job? What are they?
- What kind of training or development would rectify the deficiencies? Why?
- Do you see these needs likely to be met? If not, why?
- For supervisors: What kinds of experiences, education, or training are needed for the employees under your supervision? Why? Of all the types needed, which are the most important?

6. Preparation of significant others outside the PMS

- PMS success is dependent partially on people outside the PMS. Are there needs for experience, education, or development of key types of people outside the PMS which, if met, would positively impact on the PMS? If so, what are they?
- What types of experience, education, or training would help?

7. Process/mechanisms for training and development

- What mechanisms are in place for identifying training and development needs? Could they be improved and if so, how?
- What mechanisms exist for fulfilling training and development needs? Could they be improved and if so how? Are there additional ones needed?
- How easy or difficult it is to actually avail yourself or your employees of existing training and development opportunities?
- If there are impediments, what are they?
- To what extent are you aware of the NAVSEA Institute courses, and are they relevant to your training needs?

8. Additional issues

- There has been a lot of public attention paid lately to the issue of improving the acquisition system generally and acquisition professionalism in particular. This has resulted in some new OSD and Navy policies and programs as well as enhancing some existing ones. What is your perception of all this? Do you feel affected by it? Do you see it making a difference?

- To what extent does the experience, education, and training of military and civilians in the PMS seem similar, different, complement one another or not? What about the systems for achieving military and civilian career development? Should this issue be attended to, and if so, why?
- To what extent do you think the training and development needs for PMS members tend to be unique to a particular PMS vs. generic across PMSs? How about generic for PMOs across SYSCOMs?
- Does the phase the program is in (e.g., concept exploration vs. production) make a difference in what kinds of training and development people most need?

APPENDIX B
LIST OF DESIRABLE SKILLS AND KNOWLEDGE

LIST OF DESIRABLE SKILLS AND KNOWLEDGE

The list presented here is a more specific set of categories of information and skills that PMS interviewees felt were desirable. The list was compiled by extracting references to training and education from all interviews. These references were extremely varied in their specificity. Some were highly specific (e.g., "Contractor Performance Measurement Course") while some were highly general (e.g., "budgeting").

The list is to be read and interpreted as follows: A general category is presented along with the number of people who said it was desirable (they had received this information and found it useful, wanted to obtain this information, or thought others in the PMS need to have this information or skill). Below each general category are one or more specific references in that category with frequency and then a category total. Caution should be exercised in interpreting the frequencies, however. These are responses that principally came spontaneously to mind, and many people might have responded positively to certain items if they had been suggested in a structured questionnaire format.

Category	Frequency
Private Industry/Contractors	2
Private industry management practices	5
Private industry financial management practices	1
General control of contractors	3
Cost and schedule control system criteria	1
Contractor performance measurement	5
Financial control of contractors	1
Cost and schedule performance	1
Interpersonal skills for dealing with contractors	1
Total	<u>20</u>
Acquisition system	2
Current laws and regulations	4
Navy systems acquisition management	6
Instructions	3
Information for readers of	1
Information for writers of	1
Total	<u>16</u>
Procurement/Contracts	13
International procurement	1
Cost estimating	2
Total	<u>16</u>
Financial Management	6
Budgeting	4
PPBS	2
POM	1
Total	<u>13</u>

<u>Category</u>	<u>Frequency</u>
Program management	1
DSMC Program Management Course	7
DSMC short courses	4
Other (e.g., Anacostia, Harbridge House)	3
Total	15
Communications	
Briefing and presentation skills, public speaking	7
Writing skills	2
Interpersonal skills for dealing with other PMS members	1
Total	10
General Management Development	
Executive development	1
Engineers and scientists as managers	1
Supervisory development	2
Leadership development	1
Total	5
Logistics Management	3
Integrated Logistics Support	1
Integrated shipboard maintenance	1
Total	5
Other	
Industrial engineering	1
Goal setting	1
Problem diagnosing and solving	2
Sales/marketing	2
Quality assurance	1
Refresher training in engineering	1
Speed reading	1
EEO	2
Time management	2
Organization structure (OSD and Navy headquarters generally and in NAVSEA in particular; also, NAVSEA chain-of-command and chop chains.	4
Configuration reviews	2
Data management	2
Use of computers	4
Multinational information	2
Civilian personnel system (mentioned by military only)	2
Total	29

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